

What is a Trait?

Genetics

Please open the “Trait Wkst” on the wiki

Save the worksheet to notability so you can fill it out



Trait

- A genetically-determined characteristic



(anything about you that is determined by your DNA)

Can you think of more?

Here are some examples...



Trait = Dimples

■ Dimples or no dimples?



Indentations in your cheek when you smile are called dimples, and these are affected by your genes.

Trait = Thumb Dominance

💧 Right-thumbed or left thumb?



Left-thumbed



Right-thumbed

When you clasp your hands together and interlock your fingers, genetics decide which position is most natural for you. Look for the thumb that is on top.

Trait = Tongue rolling

- Can roll tongue or can't roll tongue?



Tongue rolling is a genetic trait certain people have that allows them to curl their tongue.

Trait = Toe order

- Big toe or second toe? (Which is longer?)



Some people have toes that decrease (get smaller) in size from the big toe to the small one, while other people have a second toe that is longer than their big toe.

Trait = Hitchhiker's thumb

- Hitchhiker's thumb or regular thumb?



These two images show the difference between a regular thumb and a "Hitchhiker's thumb," which, because of a genetic difference, can bend further backwards.

Trait = Finger spread

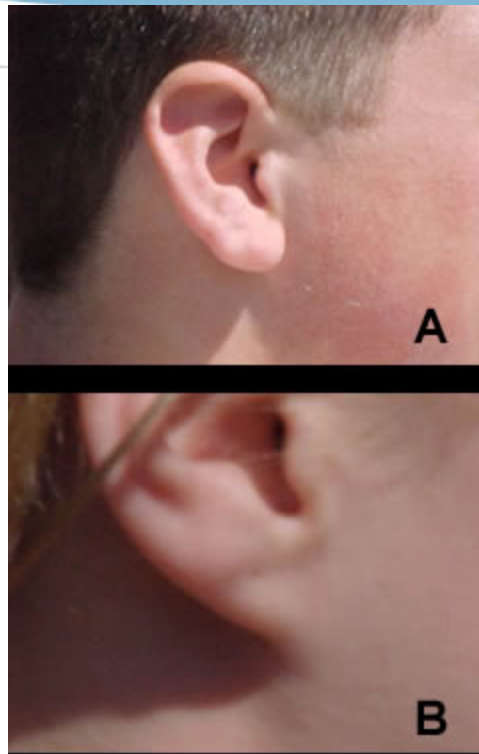
- Can spread or can't spread?



Live long and prosper! Some people can easily make this sign, made famous by Spock from Star Trek. Other people find it very difficult.

Trait = Earlobes

■ Connected or detached?



Some people have earlobes that are attached directly to the face (B).
Others have lobes that hang more freely (A).

Trait = Freckles

- Freckles or no freckles?



Freckles vary in severity, but some people have them and others do not.

Check to make sure you have each of the following filled out:

| Trait | My phenotype |
|---------------------|--------------|
| Dimples | |
| Thumb dominance | |
| Tongue rolling | |
| Toe order | |
| Hitchhiker' s thumb | |
| Finger spread | |
| Earlobes | |
| Freckles | |

Find your trait twin

- Using your t-chart, walk around the room and try to find someone with the exact same list of traits as you.
- When you find someone, sit down next to each other.

Reflection

- 💧 Were you able to find a partner?

- 💧 If so:

- 💧 What other traits do you have in common?
- 💧 What are some traits that you do not share?
- 💧 Why are you not exactly the same as this person?

- 💧 If not:

- 💧 What was the closest you got to finding a partner (how many traits did you share out of 8)?
- 💧 Why was it difficult to find someone with the exact same traits?
- 💧 Where would you look to find someone who shared all of these traits?

Trait = Eye Color

- What color are your eyes?
(Brown, Blue, Green, Hazel, etc.)



Eye color is an inherited trait influenced by more than one *gene*.

Genetics Tour



Traits are determined by
our genes.



Genes are determined by our DNA.

DNA is an instruction manual for our bodies, a gene is an individual instruction.



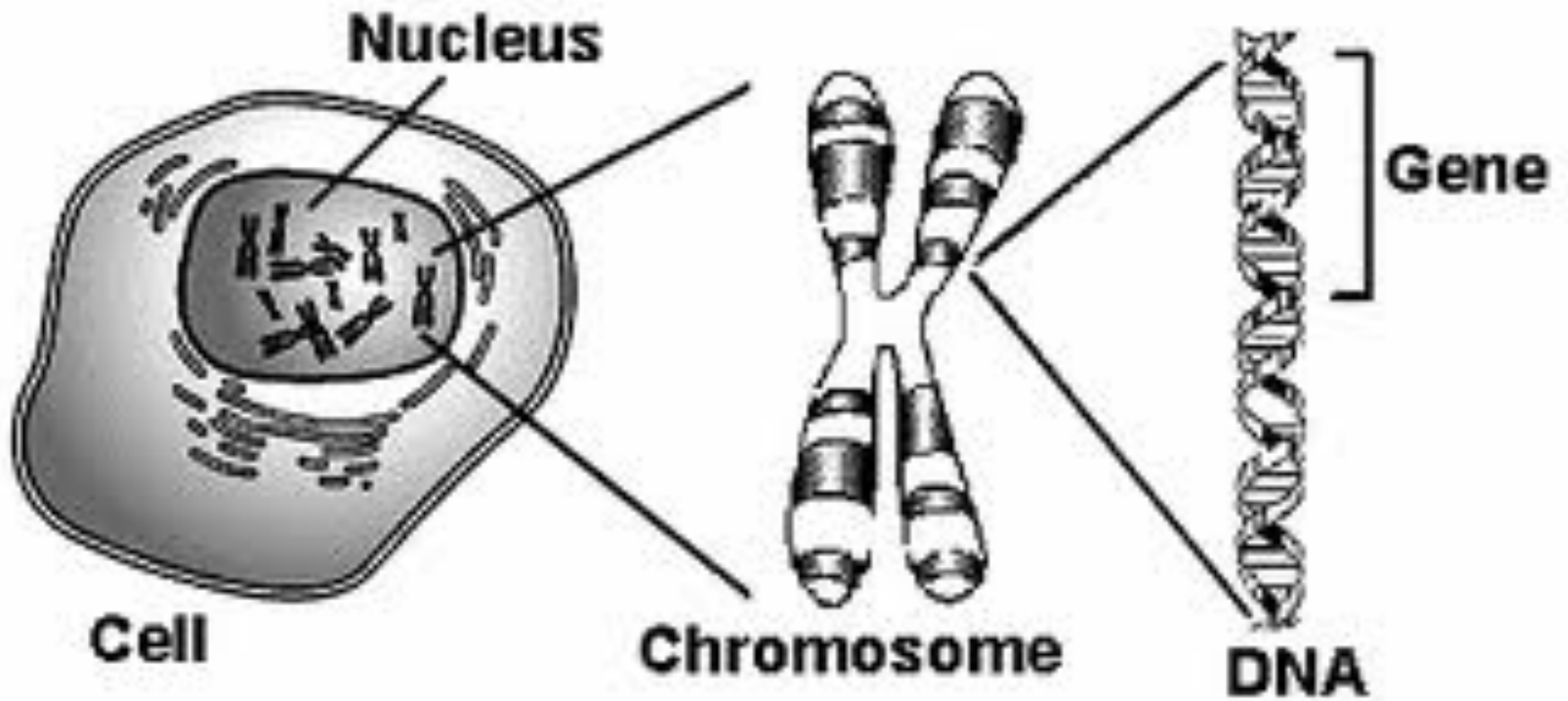
DNA is contained in our chromosomes.

Chromosomes are the package that contains the instructions.



Chromosomes are
contained in our cells.



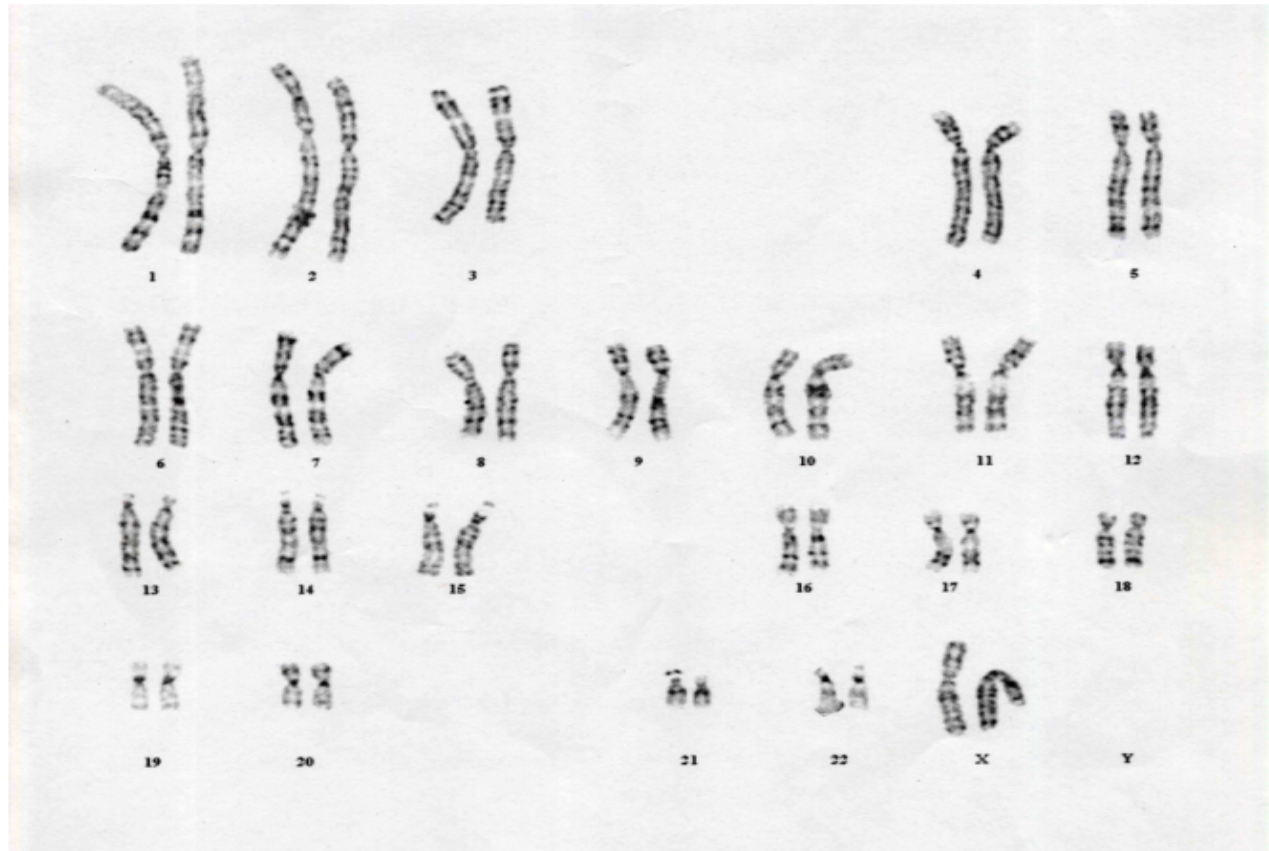


Karyotype

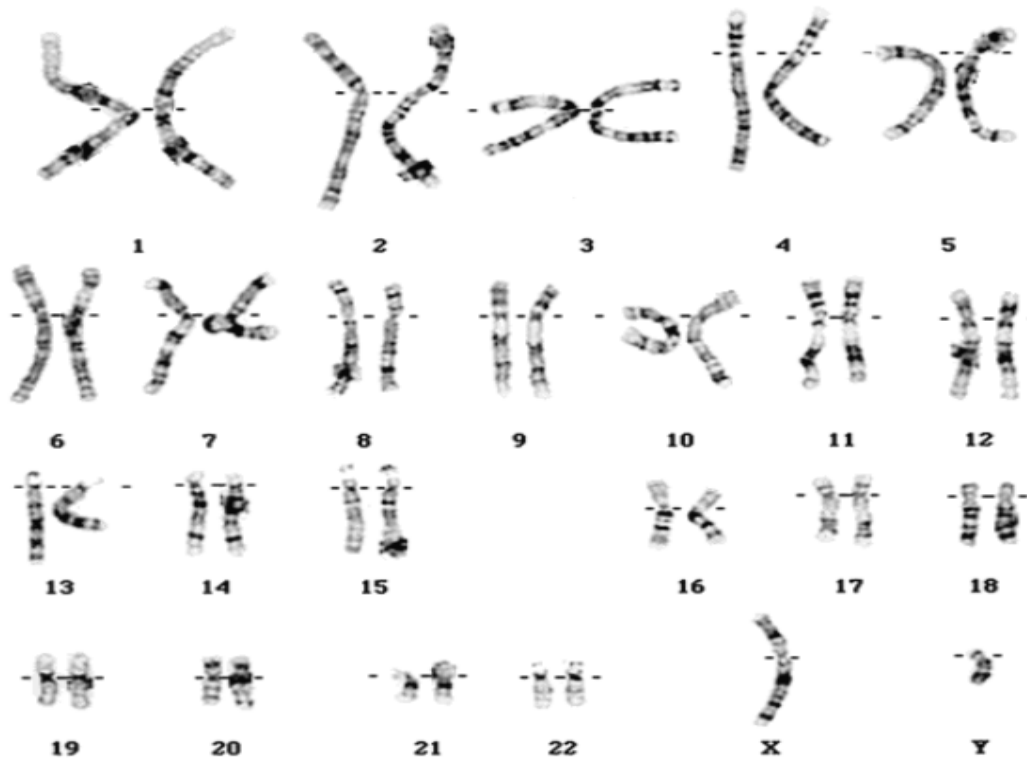
“blueprint” of our chromosomes



Female Karyotype



Male Karyotype



If there's a "Y", it's
a GUY

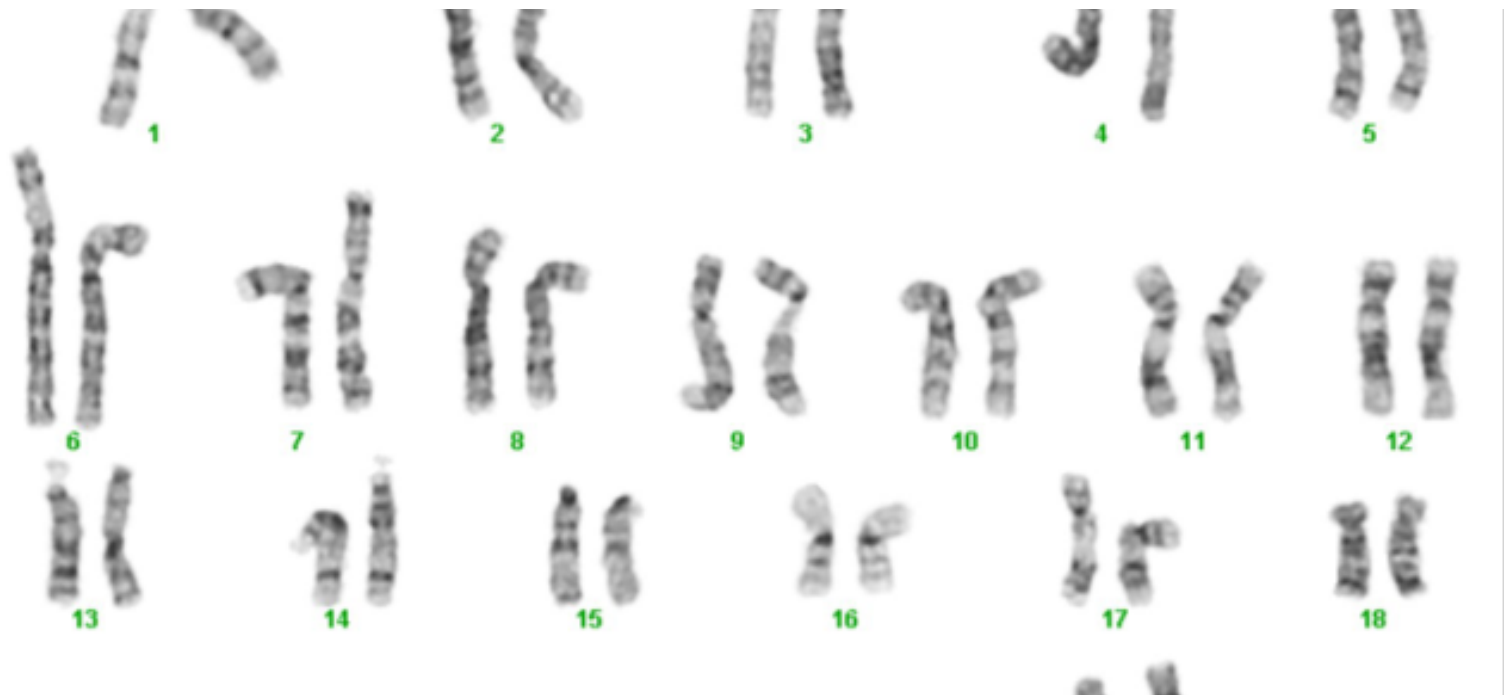
XX = Female

XY = Male

(Boys are weird!)



Karyotype with Down's Syndrome (Trisomy 21)



Cell

- Inside the nucleus of each cell, you can find...

Chromosome

- Chromosomes are bundles of...

DNA

- This twisted ladder can be broken into segments called...

Gene

- This piece of DNA has the code for specific traits.